



# 309th Commodities Group



## Machine Coolant Reduction Strategy

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# Mission Overview

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**The 309<sup>th</sup> Commodities Maintenance Group provides Maintenance, Repair, and Overhaul of Landing Gear, Hydraulics, Armament, Power Systems, and Advanced Composites Products and Components**

## Four Squadrons

**530<sup>th</sup> Power Systems Squadron**

**531<sup>st</sup> Commodities Squadron**

**532<sup>nd</sup> Landing Gear Squadron**

**533<sup>rd</sup> Technical Repair Squadron**



# Mission Overview



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**Hydraulics**



**Chrome Plating**



**Structural Sup**



**Power Sys**



**Autoclave Cure**



**Composites**



**Ultrasonic Test**



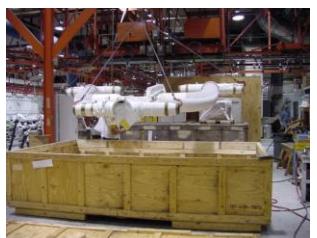
**Wheels/Brakes**



**Machining**



**LO Testing**



**Landing Gear**

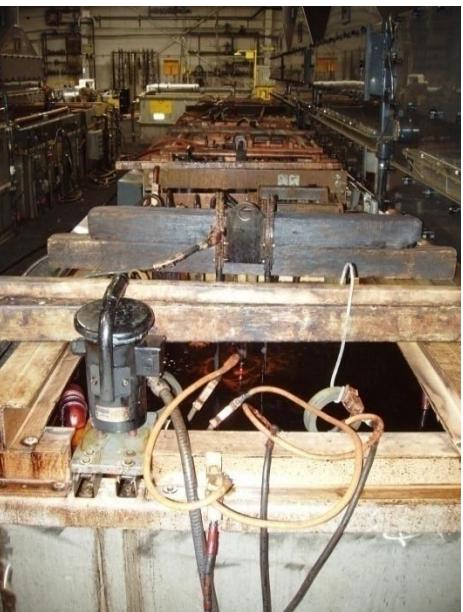


# Background

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- After manufacture & Chrome Plating:
  - Machining & grinding
  - Coolant is used to cool and lubricate





# Background

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## ■ Coolant:

- Generated from six different machine shops
- Mixture of 90% water & 10% emulsified oil
- Degrades (tramp oils, bacteria, particles)
- Disposed of approximately 50,000 gallon annually





# Problem



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- Past Disposal Method Pumped to the Industrial Waste Treatment Plant (IWTP)
  - Started causing problems with new Permit Limits
  - Banned discharge in 2006
- Forced us to either Drum or Tank:
  - Non RCRA cost of \$100K+





# Solution

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## ■ Three prong Approach:

- Find a cheaper disposal contractor
- Increase the coolant working life
- Reduce volume of waste



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# Solution

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## ■ Approach One:

- Contracted Safety Kleen - \$1.00 per gallon (Non-RCRA)
- Reduced disposal cost by 50%

## ■ Approach Two:

- Purchase 3 Freddy TOS Units
  - Filter
  - Kill bacteria
  - Remove tramp oil
- Doubled service life
- An additional cost savings of 50%





# Solution



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## ■ Approach Three:

- Reduce volume even further
- Tested Sanborn UFV 250Ultra filtration
- Membrane filtration of permeate (water)





# Solution

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## ■ Approach Three, Cont'd:

- Coolant transferred to UFV250
- Dehydrated with UFV250
- Concentrated to 10 – 15% of original volume





# Solution

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## ■ Approach Three, Cont'd:

- Concentrate transferred to holding tank for processing to Safety-Kleen
- Oil recovery and final disposal
- 2K to 3K gallons annually, down from 50K





# Cost\$\$\$

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- Original Cost for Disposal \$100K
- Switching Disposal Contractor (\$50K)
- Implementation of Freddy TOS:
  - Equipment cost \$15K
  - Cost avoidance (\$25K)
- Implementation of UFV250:
  - Equipment/installation cost \$35K
  - Cost avoidance (\$20k)



# Cost\$\$\$

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## Bottom Line!!

**95% Reduction in Coolant Waste (bulk)  
Disposal and Costs**





# Questions?



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